

TYBSc Semester 6

Paper-2

Which one of the following catalyzes the chemical reactions inside the cells?

- a) Hormones
- b) Enzymes
- c) Neurons
- d) Products

Atmospheric nitrogen is converted to ammonia by which enzyme?

- e) Nitrogenase
- f) Lactate dehydrogenase
- g) Xylose isomerase
- h) Fumarase

Which one of the following has given systematic code number to each enzyme?

- i) Enzyme Commission (EC) number
- j) Enzyme committee
- k) Induced fit model
- l) Numbering system of enzymes

According to Enzyme Commission (EC) number, the enzymes and the reactions they catalyze are divided into how many major classes?

- a) 6 major classes
- b) 4 major classes
- c) 8 major classes
- d) 2 major classes

2) Which group of enzymes, transfer functional groups between donor and acceptor molecule?

- a) Oxidoreductases
- b) Transferases
- c) Hydrolases
- d) Isomerases

Which of the following is the example of enzyme class Isomerases?

- a) Catalase
- b) Cholin
- c) Maleate isomerise
- d) Fumerase

Which of the following class enzymes transfer functional groups between donor and acceptor molecules?

- a) Oxidoreductase
- b) Transferases
- c) Hydrolases
- d) Isomerases

Which energy is required to start a reaction?

- a) Initiation energy
- b) Catalytic energy
- c) Solar energy
- d) Activation energy

Lactate dehydrogenase (LDH) is the example of what?

- a) Coenzyme
- b) Isozymes
- c) Cofactor
- d) Enzyme inhibitor

Which one of the following, shows this general scheme of reaction



- a) Isomerase
- b) Ligases
- c) Hydrolases
- d) Lyases

Which one of the following is precursor of Flavin Adenine Dinucleotide (FAD)?

- e) Biotin
- f) Nicotinamide
- g) Folic acid
- h) Riboflavin

Which type of specificity enzyme shows when it acts on a particular steric or optical isomer?

- i) Substrate specificity
- j) Absolute specificity
- k) Stereochemical specificity
- l) Group specificity

In an enzyme catalyzed reaction, _____ is formed in the transition state.

- a) Substrate
- b) Product
- c) ES complex
- d) Enzyme

_____ catalyze the cleavage of bonds by addition of water across the bonds.

- a) Oxidoreductases
- b) Transferases
- c) Hydrolases
- d) Ligases

Select the incorrect combination of coenzyme and deficiency

- a) Tetrahydrofolate - Anaemia
- b) Thiamine pyrophosphate - Beriberi
- c) FAD - Pellagra
- d) FMN - Growth Retardation

If the enzyme has a high affinity for the substrate, the K_m value will be

- a) High
- b) Low
- c) Maximum
- d) Unaffected

Allosteric regulators modify enzyme activity by binding to

- a) Active site of enzyme
- b) Enzyme-substrate complex
- c) Regulatory site other than active site of enzyme
- d) Product

Which of the following enzymes are not used in detergents?

- a) Lipases
- b) Amylases
- c) Ligases
- d) Proteases

What is the optimum pH of enzyme Pepsin?

- a) 7.0
- b) 1.5-1.6
- c) 9
- d) 6

What is the optimum pH of enzyme Lipase (stomach)?

- a) 4.0-5.0
- b) 8.0
- c) 1.5
- d) 6.2

Which term is used to indicate a molecule which acts directly on an enzyme to lower its catalytic rate?

- m) Enzyme inhibitor
- n) Coenzyme
- o) Holoenzyme
- p) Apoenzyme

What is the term for complete complex of enzyme together with its cofactor?

- a) Holoenzyme
- b) Apoenzyme
- c) Coenzyme
- d) Isozyme

What is the term for substrate concentration at which the reaction velocity is equal to half of its maximum?

- q) V_{\max}
- r) Competitive inhibitor
- s) Michaelis constant
- t) Activation energy

Which of the following enzymes catalyses a reaction in which starch is converted into beta-glucose?

- a) Amylase
- b) Glucoamylases
- c) Proteases
- d) Lipases

Which of the following enzyme removes stains of starch-based foodstuff from cloths?

- a) Lipases
- b) Amylase
- c) Protease
- d) Esterases

Which of the following acts as inhibitor for enzyme Transpeptidase?

- u) Aspirin
- v) Disulfiram
- w) Methotrexate
- x) Penicillin

What are different forms of same enzymes?

- y) Coenzyme
- z) Isozymes
- aa) Holoenzyme
- bb) Enzyme inhibitors

Which area is considered as one of the best sites of non-shivering thermogenesis?

- a) Stomach
- b) Brown fat
- c) Salt gland
- d) Kidney

Which of the following is the form of adaptive hypothermia exhibited by small sized animals to conserve metabolic energy during inactive stage?

- a) Daily Torpor
- b) Evaporation
- c) Higher basal metabolic rate
- d) Salt excretion

Which hormone initiates the contractions of the smooth muscles of the uterus, during labour?

- a) Insulin
- b) Estrogen
- c) Oxytocin
- d) Glucagon

In homeostatic regulatory mechanism, which one of following responds to the commands of the control centre by either opposing or enhancing the stimulus?

- cc) Detector
- dd) Effector
- ee) Regulator
- ff) Control centre

Which of the following is the example of positive feedback mechanism?

- gg) Oxytocin regulation during child birth
- hh) Insulin regulation in blood glucose level
- ii) Glucagon regulation in blood glucose level
- jj) Estrogen regulation in Menstrual cycle

What is the normal average level of glucose in the blood?

- kk) 90mg per 100cm³
- ll) 20mg per 100cm³
- mm) 180mg per 100cm³
- nn) 250mg per 100cm³

Hypoglycemic condition of the blood _____ insulin secretion.

- a) Stimulates
- b) Inhibits
- c) Maximizes
- d) Does not affect

Organisms that maintains its internal environment constant irrespective of the external environment are known as _____

- a) Conformers
- b) Invertebrates
- c) Vertebrates
- d) Regulators

In which process, there is a gradual improvement in the ability of an organism is seen to withstand or tolerate the stress of changed environment?

- oo) Positive Feedback Mechanism
- pp) Control system
- qq) Negative Feedback Mechanism
- rr) Acclimatization

Which one of the following are patterns of biological activity that occur cyclically after a period of approximately 24 hours?

- ss) Circadian Rhythms
- tt) Diurnal Rhythms
- uu) Ectothermy
- vv) Endothermy

The heat loss regulatory centre is located in _____

- a) Anterior pituitary
- b) Posterior pituitary
- c) Thymus
- d) Anterior hypothalamus

Which of the following factors does not generate heat?

- a) Sleeping
- b) Shivering
- c) Exercising
- d) Higher BMR

_____ are homeotherms that hibernates

- a) Toads
- b) Frogs
- c) Fishes
- d) Bats

Lipids stored in the hump of camels is _____

- a) Drinking water
- b) Salt water
- c) Metabolic water
- d) Excretory water

What is a seasonal dormancy, exhibited by the animals to escape from excessive cold?

- ww) Evaporation
- xx) Hibernation
- yy) Astivation
- zz) Ionic Regulation

Which one of the following organs acts as osmoregulatory organs in veretebrates?

- aaa) Heart
- bbb) Liver
- ccc) Kidney
- ddd) Pancreas

Which animal can store lipids in its hump which is good source of water, besides energy supply?

- a) Rat
- b) Pigeon
- c) Camel
- d) Fish

Which of the following is the example of positive feedback mechanism?

- eee) Clotting of blood
- fff) Blood glucose level
- ggg) Regulation of pH
- hhh) Heart rate

Which one of the following is known for counter current multiplier?

- a) Loop of Henle
- b) Nephron
- c) Bowman's Capsule
- d) Collection duct

Which term describes the transfer of heat by physical contact between the two bodies or objects?

- a) Radiation
- b) Conduction
- c) Convection
- d) Evaporation

Which gland secretes thymosin hormone, which plays an important role in development of T lymphocytes cells?

- a) Adrenal gland
- b) Testis
- c) Thymus gland
- d) Pancreas

What is the term for the animal that permits internal and external conditions to be equal?

- a) Regulator
- b) Conformer
- c) Detector
- d) Effector

Which of the following hormone is a steroids?

- a) Prolactin
- b) Epinephrine
- c) Progesterone
- d) Prostaglandins

Which of the following is synchronized with the day and night cycle?

- iii) Circadian Rhythms
- jjj) Diurnal Rhythms
- kkk) Ectothermy
- lll) Endothermy

Hormone not produced by neurohypophysis

- a) ADH
- b) Aldosterone
- c) Testosterone
- d) Insulin

Melatonin hormone is secreted by _____ gland

- a) Thyroid
- b) Adrenal
- c) Pineal
- d) Parathyroid

Which of the following organ secretes hormones estrogen and progesteron?

- mmm) Ovary
- nnn) Adrenal gland
- ooo) Pancreas
- ppp) Thyroid gland

What is the weight of Adrenal gland in Adult?

- qqq) 20 grams
- rrr) 2 grams
- sss) 5 to 9 grams
- ttt) 15 grams

Which of the following hormones comes under catecholamines or amines category of hormones?

- uuu) Lutenizing hormone
- vvv) Prolactin
- www) Epinephrine
- xxx) Prostaglandins

_____ gland is a site for maturation of lymphocytes

- a) Adrenal
- b) Pancreas
- c) Thymus
- d) Pineal

_____ is a mixed type of gland

- a) Pancreas
- b) Adrenal
- c) Thyroid
- d) Pituitary

_____ is not a glycoprotein in nature

- a) FSH
- b) Cortisol
- c) Thyrotropin
- d) LH

Melanocytes stimulating hormone (MSH) is secreted by which part of pituitary gland?

- a) Pars intermedia
- b) Adenohypophysis
- c) Pars distalis
- d) Pars tuberalis

Acromegaly is a disorder caused due to over activity of which gland?

- a) Adrenal gland
- b) Thyroid gland
- c) Pineal gland
- d) Pituitary gland

Chromophils does not secrete _____ hormone

- a) ACTH
- b) TSH
- c) FSH
- d) MSH

Which hormone is secreted by adrenal cortex of adrenal gland?

- a) Mineralocorticoids
- b) Epinephrine
- c) Adrenaline
- d) Norepinephrine

In which process the body temperature of organisms is regulated for efficient functioning of the body?

- a) Ectothermy
- b) Diurnal Rhythms
- c) Thermoregulation
- d) Ionic regulation

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Pineal gland secretes which hormone?

- a) Growth hormone
- b) Melatonin hormone
- c) Parathormone
- d) Testosterone

In activation of gene, which complex binds to Hormone Response Element (HRE) site of DNA ?

- a) Receptor
- b) Hormone
- c) Enzyme-substrate
- d) Hormone-receptor

Which of the following is the physiological adaptations found in animals to maintain the water-salt balance in the body?

- a) Salt water ingestion and salt excretion
- b) Aestivation
- c) Daily Torpor
- d) Radiation

Which hormone controls the lactation cycle in female?

- a) Progesteron
- b) Folicle stimulating hormone
- c) Luteotropic hormone
- d) Lutenising hormone

Which disorder is caused by the hypoactivity of the pituitary gland?

- a) Gigantism
- b) Dwarfism
- c) Exophthalmic goitre
- d) Cushing's Syndrome

Which of the following disorder is caused by hyperativity of adrenal cortex?

- a) Cushing's Syndrome
- b) Addison's disease
- c) Diabetes mellitus
- d) Myxoedema

Which metabolic disorder is developed due to defective production/hyposecretion of insulin?

- a) Cretinism
- b) Diabetes mellitus
- c) Addison's disease
- d) Myxodema

Which of the following is the example of artificial media?

- a) Coagulant
- b) Biofluid
- c) Tissue extract
- d) Serum containing media

Which hormone is produced by Pituitary Gland?

- a) Thyroxine
- b) Glucagon
- c) Folicle stimulating hormone
- d) Adrenaline

Which of the following is also known as wet steam sterilization?

- a) Autoclave
- b) Flaming
- c) Filtration
- d) Capping

At what level normal mammalian cell line grows in culture?

- a) pH 9
- b) pH 7.4
- c) pH 2
- d) pH 4

Which of the following cells produce glucagon in Pancreas?

- a) Alpha cells
- b) Beta cells
- c) Delta cells
- d) G-cells

Which of the following hormone is secreted by adrenal medulla of adrenal gland?

- a) Cortisol
- b) Corticosterone
- c) Norepinephrine
- d) Mineralocorticoids

Which one of the following is the only method that uses to separate rather than kill the microorganism?

- a) Flaming
- b) Radiation sterilization
- c) Filtration
- d) Capping

At what pH insect cell line normally grows?

- a) pH 6.2
- b) pH 7.4
- c) pH 7.0
- d) pH 7.7

Which of the following is the media is prepared using plasma?

- a) Biofluid
- b) Tissue Extracts
- c) Coagulant
- d) Serum free media

After isolating cells from parental tissue or organ, which of the following step is performed?

- a) Separation of viable and non-viable cells
- b) Tissues are placed in balanced salt solution
- c) Disaggregation of tissue with some of form of maceration
- d) Enzymatic disaggregation of tissue

Which of the following cell line has acquired the ability to proliferate indefinitely?

- a) Established cell lines
- b) Primary cell lines
- c) Adherent cell lines
- d) Anchorage independent primary cell lines

Which of the following is used as source of energy by cells in media?

- a) Glucose and galactose
- b) Salts
- c) Antiniotics
- d) Amino acids

Which of the following is the measure of the solute concentration defined as number of osmoles of solute per liter of solution?

- a) Viscosity
- b) Surface tension
- c) Temperature
- d) Osmolality

What is the osmolarity of human plasma?

- a) 290 mOsm/kg
- b) 10 mOsm/kg
- c) 500 mOsm/kg
- d) 100 mOsm/kg

Which one of the following is type of natural media used for animal tissue culture?

- a) Serum containing media
- b) Chemically defined media
- c) Tissue extracts media
- d) Protein free media

Which term is used for the cells do not grow in culture media?

- a) Viable cells culture
- b) Non-viable cells
- c) Balanced salt solution
- d) Dulbecco's phosphate buffer saline

How long disaggregated tissue is soaked in cold trypsin for cold trypsinization process?

- a) Overnight
- b) 3 days
- c) 20 to 30 minutes
- d) 5 days

The UV portion of the spectrum includes radiation from _____

- a) 150 A⁰ to 3900 A⁰
- b) 2650 A⁰ to 3900 A⁰
- c) 150 A⁰ to 2650 A⁰
- d) 300 A⁰ to 3500 A⁰

Choose the correct statement.

- a) Flaming the glassware systematically reduces the contamination risk. So, it is recommended in Laminar air flow.
- b) Flaming the glassware systematically reduces the contamination risk. But it is not recommended in Laminar air flow.
- c) Flaming the glassware do not reduce the risk of contamination risk. So, it is not recommended in Laminar air flow.
- d) Flaming the glassware systematically eliminates the contamination risk completely

Serum free media is a _____.

- a) Basal media
- b) Minimal media
- c) Natural media
- d) Defined media

CO₂ and bicarbonates used in ATC helps in _____ -

- a) Maintaining osmotic pressure
- b) Maintaining pH
- c) Maintaining gaseous requirements
- d) Supplying nutrients

Which one of the following is the first step in cell culture techniques?

- a) Separation of viable and non viable cells
- b) Disaggregation of tissue
- c) Cell isolation
- d) Preparation of flask culture

Which one of the followings are the cells which require attachment for growth and are also known anchorage-dependent cells?

- a) Adherent cells
- b) Suspension cells
- c) Established cell lines
- d) Immortal cell lines

Trypsinization helps in _____.

- a) Growth of the tissue
- b) Protecting tissue from the action of other factors
- c) Enzymatic degradation of tissue
- d) Neutralizing the media

HeLa is an example of _____.

- a) Suspension cell line
- b) Primary cell line
- c) Hybridoma
- d) Continuous cell line

Spleen derived lymphocytes are added in hybridoma to _____.

- a) Synthesize desired antibodies
- b) Provide nutrition
- c) Support the growth of hybridoma
- d) Select the hybrid cells

Which one of the following is the technique used for production of large number of identical antibodies also called as monoclonal antibodies?

- a) Hybridoma technology
- b) Established cell lines
- c) Primary cell lines
- d) Immortal cell lines

What is the process that eradicates all the microorganisms from instruments, surface or culture media?

- a) Cell isolation
- b) Coverslip culture
- c) Sterilization
- d) Test tube culture